CLAIMS

What is claimed is:

1. A method of switching a first gateway from a voice mode to a facsimile mode, said method comprising:

5   configuring said first gateway to said voice mode for communication with a second gateway over a packet network;

receiving a plurality of data packets from said second gateway over said packet network;

analyzing one or more of said plurality of data packets to determine whether said one

10   or more of said plurality of data packets carry facsimile data packets or voice data packets; and

configuring said first gateway to said facsimile mode if said analyzing determines that said one or more of said plurality of data packets carry facsimile data packets.

2. The method of claim 1, wherein said voice data packets are RTP packets and

15   said facsimile data packets are UDPTL packets.

3. The method of claim 2, wherein IP/UDP packets encompass said RTP packets and said UDPTL packets.

4. The method of claim 3, wherein each UDP packet includes a UDP header and a UDP payload, said UDP header indicates a first length of said UDP payload, each UDPTL

20   packet has a predetermined structure, and wherein said analyzing comprises:

calculating a second length of said UDP payload in accordance with said predetermined structure of said UDPTL packet; and

deciding said UDP payload includes said UDPTL packet if said first length is equal to said second length.

25   5. The method of claim 4, wherein said calculating said second length comprises:

writing zero to said second length;

adding two to said second length for UDPTL sequence number field;

adding one to said second length for UDPTL length of primary IFP field;

reading UDPTL length of primary IFP from said UDPTL length of primary IFP field;

adding said UDPTL length of primary IFP to said second length;

5   adding one to said second length for UDPTL error recovery mechanism field;

adding one to said second length for UDPTL number of secondary IFP field;

reading UDPTL number of secondary IFP from UDPTL number of secondary IFP field; and

adding, for each of said UDPTL number of secondary IFP, a length of UDPTL

10   secondary IFP to said second length.

6.   The method of claim 4, wherein said analyzing further comprises:

comparing, prior to said calculating, an RTP type field within each UDP payload with a predetermined RTP type; and

determining that said one or more of said plurality of data packets do not carry

15   facsimile data packets if said RTP type field within each UDP payload does not match said predetermined RTP type.

7.   A first gateway in communication with a second gateway over a packet network, said first gateway comprising:

a receiver configured to receive a plurality of data packets from said second gateway

20   over said packet network;

a voice module configured to receive said plurality of data packets, if said first gateway is in a voice mode, to retrieve voice packets within said plurality of data packets;

a facsimile module configured to receive said plurality of data packets, if said first gateway is in a facsimile mode, to retrieve facsimile packets within said plurality of data

25   packets; and

a processor configured to analyze one or more of said plurality of data packets, when said first gateway is in said voice mode, to determine whether said one or more of said

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plurality of data packets carry facsimile data packets or voice data packets;

wherein, when said first gateway is in said voice mode, said processor configures said first gateway to said facsimile mode if said processor determines said one or more of said plurality of data packets carry facsimile data packets.

5   8.   The first gateway of claim 7, wherein said voice data packets are RTP packets and said facsimile data packets are UDPTL packets.

9.   The first gateway of claim 8, wherein IP/UDP packets encompass said RTP packets and said UDPTL packets.

10.   The first gateway of claim 9, wherein each UDP packet includes a UDP

10   header and a UDP payload, said UDP header indicates a first length of said UDP payload, each UDPTL packet has a predetermined structure, and wherein said processor determines said one or more of said plurality of data packets carry facsimile data packets by calculating a second length of said UDP payload in accordance with said predetermined structure of said UDPTL packet, and decides said UDP payload includes said UDPTL packet if said first

15   length is equal to said second length.

11.   The first gateway of claim 10, wherein said processor calculates said second length by writing zero to said second length, adding two to said second length for UDPTL sequence number field, adding one to said second length for UDPTL length of primary IFP field, reading UDPTL length of primary IFP from said UDPTL length of primary IFP field,

20   adding said UDPTL length of primary IFP to said second length, adding one to said second length for UDPTL error recovery mechanism field, adding one to said second length for UDPTL number of secondary IFP field, reading UDPTL number of secondary IFP from UDPTL number of secondary IFP field, and adding, for each of said UDPTL number of secondary IFP, a length of UDPTL secondary IFP to said second length.

25   12.   The first gateway of claim 10, wherein said processor analyzes said one or more of said plurality of data packets by comparing, prior to said calculating, an RTP type field within each UDP payload with a predetermined RTP type, and said processor

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determines that said one or more of said plurality of data packets do not carry facsimile data packets if said RTP type field within each UDP payload does not match said predetermined RTP type.

13.   A method for use by a communication system for switching from a voice

5   mode to a facsimile mode, said method comprising:

configuring a first gateway to said voice mode;

configuring a second gateway to said voice mode, wherein said second gateway is in communication with said first gateway over a packet network;

receiving voice data by said first gateway;

10   packetizing said voice data by said first gateway, in accordance with said voice mode, to generate data packets for transmission to said second gateway over said packet network;

receiving a facsimile calling tone by said first gateway from a first facsimile device;

configuring said first gateway to said facsimile mode from said voice mode, in response to said receiving said facsimile calling tone;

15   receiving facsimile data by said first gateway from said first facsimile device; and

packetizing said facsimile data by said first gateway, in accordance with said facsimile mode, to generate said data packets for transmission to said second gateway over said packet network;

wherein said second gateway analyzes one or more of said data packets to determine

20   whether said one or more of said data packets is packetized according to said voice mode or said facsimile mode, and wherein said second gateway switches from voice mode to facsimile mode if said second gateway determines that said one or more of said data packets is packetized according to said facsimile mode.

14.   The method of claim 13, wherein said data packets packetized in accordance

25   with said voice mode are RTP packets and said data packets packetized in accordance with said facsimile mode are UDPTL packets.

15.   The method of claim 14, wherein IP/UDP packets encompass said RTP

packets and said UDPTL packets.

16.   The method of claim 15, wherein each UDP packet includes a UDP header and a UDP payload, said UDP header indicates a first length of said UDP payload, each UDPTL packet has a predetermined structure, and wherein said second gateway analyzes each of said one or more of said data packets by calculating a second length of said UDP payload in accordance with said predetermined structure of said UDPTL packet, and determines said UDP payload includes said UDPTL packet if said first length is equal to said second length.

17.   The method of claim 16, wherein said calculating said second length comprises:

writing zero to said second length;

adding two to said second length for UDPTL sequence number field;

adding one to said second length for UDPTL length of primary IFP field;

reading UDPTL length of primary IFP from said UDPTL length of primary IFP field;

adding said UDPTL length of primary IFP to said second length;

adding one to said second length for UDPTL error recovery mechanism field;

adding one to said second length for UDPTL number of secondary IFP field;

reading UDPTL number of secondary IFP from UDPTL number of secondary IFP field; and

adding, for each of said UDPTL number of secondary IFP, a length of UDPTL secondary IFP to said second length.

18.   The method of claim 16, wherein said second gateway analyzes said one or more of said plurality of data packets by comparing, prior to said calculating, an RTP type field within each UDP payload with a predetermined RTP type, and said second gateway determines that said one or more of said plurality of data packets do not carry facsimile data packets if said RTP type field within each UDP payload does not match said predetermined RTP type.

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19.   A communication system comprising:

a first gateway having a facsimile mode and a voice mode, said first gateway including:

a receiver configured to receive voice data;

5   a processor configured to packetize said voice data, in accordance with said voice mode, to generate data packets for transmission to said second gateway over a packet network, wherein said processor detects a facsimile calling tone from a first facsimile device and configures said first gateway to said facsimile mode from said voice mode, in response to said facsimile calling tone, and wherein said processor packetizes said facsimile data, in

10   accordance with said facsimile mode, to generate said data packets for transmission to said second gateway over said packet network; and

a second gateway having a facsimile mode and a voice mode, said second gateway including:

a receiver configured to receive said data packets from said first gateway over

15   said packet network;

a voice module configured to receive said plurality of data packets, if said first gateway is in said voice mode, to retrieve voice packets within said plurality of data packets;

a facsimile module configured to receive said plurality of data packets, if said first gateway is in said facsimile mode, to retrieve facsimile packets within said plurality of

20   data packets; and

a processor configured to analyze one or more of said data packets to determine whether said one or more of said data packets is packetized according to said voice mode or said facsimile mode, and wherein said processor switches said second gateway from said voice mode to said facsimile mode if said processor determines that said one or more of

25   said data packets is packetized according to said facsimile mode.

20.   The communication system of claim 19, wherein said data packets packetized in accordance with said voice mode are RTP packets and said data packets packetized in

accordance with said facsimile mode are UDPTL packets.

21.   The communication system of claim 20, wherein IP/UDP packets encompass said RTP packets and said UDPTL packets.

22.   The communication system of claim 21, wherein each UDP packet includes a UDP header and a UDP payload, said UDP header indicates a first length of said UDP payload, each UDPTL packet has a predetermined structure, and wherein said processor of said second gateway analyzes each of said one or more of said data packets by calculating a second length of said UDP payload in accordance with said predetermined structure of said UDPTL packet, and determines said UDP payload includes said UDPTL packet if said first length is equal to said second length.

23.   The communication system of claim 22, wherein said processor of said second gateway calculates said second length by writing zero to said second length, adding two to said second length for UDPTL sequence number field, adding one to said second length for UDPTL length of primary IFP field, reading UDPTL length of primary IFP from said UDPTL length of primary IFP field, adding said UDPTL length of primary IFP to said second length, adding one to said second length for UDPTL error recovery mechanism field, adding one to said second length for UDPTL number of secondary IFP field, reading UDPTL number of secondary IFP from UDPTL number of secondary IFP field, and adding, for each of said UDPTL number of secondary IFP, a length of UDPTL secondary IFP to said second length.

24.   The communication system of claim 22, wherein said processor of said second gateway analyzes said one or more of said plurality of data packets by comparing, prior to said calculating, an RTP type field within each UDP payload with a predetermined RTP type, and said processor of said second gateway determines that said one or more of said plurality of data packets do not carry facsimile data packets if said RTP type field within each UDP payload does not match said predetermined RTP type.